

Remarks

The following remarks are provided in further support of the Claims.

Present Status of the Claims: Claims 1-21 are pending.

Objections

Claims 7-10, 14, 18, and 21 are objected to by the Office.

Claim 15 is objected to because of informality wherein it is unclear from the wording of the claim in part d when the applicant wants to adjust a pointing direction of the output laser beam. The Office has correctly deduced that a portion of the claim was inadvertently omitted from the word-processed document and has examined the claim with respect to the wording of the first claim where the applicant states in part e that "adjusting at least one optical element of said laser transmitter system when said image of said second portion of said output laser beam does not impinge upon a desired region of a plurality of pixels of said means for capturing an image." Claim 15 has been amended to include the missing text, as required by the Office.

Claims 7-10, 14, 18, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including the limitation so the base claim and any intervening claims. The applicants explain below why the base claims are allowable; therefore, no amendment of these claims is submitted at this time.

Rejections:

Rejection Under 35 U.S.C. §102

Claims 1-4, 13, 15, 16, 17, and 20 are rejected under 35 U.S.C. §102(b) as being anticipated by Lipscomb (US Pat. No. 5,872,626).

Rejection Under 35 U.S.C. §103

Claims 5 and 6 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lipscomb in view of Edwards (US Pat. No. 4,889,425).

Claims 11, 12, and 19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lipscomb in view of Duquette (US Pat. No. 5,872,626).

I. DISCUSSION - 35 U.S.C. §102

Claims 1-4, 13, 15, 16, 17, and 20 are rejected under 35 U.S.C. §102(b) as being anticipated by Lipscomb (US Pat. No. 5,872,626).

Referring to **Claims 1 and 15**, the Office asserts that Lipscomb shows a method for aligning a laser transmitter system and a receiver optical system comprising an attenuator and reflector assembly (Lipscomb Fig. 4, Ref 380), reflecting a first portion of an output laser beam onto the attenuator, attenuating the first portion of the output laser beam (Fig. 4, Ref 450), inputting the first portion of the output laser beam to change direction so as to direct the first portion of the laser beam into the receiver optical system (Fig. 4, Ref 475 and 465), directing a second portion onto a means for capturing an image to generate an image of the second portion (Fig. 4, Ref 460), determining a position and an intensity profile of the second image (column 7, lines 42-67) and adjusting at least one optical element (column 7, lines 42-67.)

However, the method of operation of the invention of Lipscomb and the method of this invention are very distinct from each other. The invention of Lipscomb is a laser alignment and test station; his invention is presented in Lipscomb's Figure 4 and described in Column 7 line 59 through Column 8 line 33, and it is very different from the present invention. The invention of Lipscomb is used for testing, aligning, and refurbishing laser transceivers (Column 1, lines 2-3). The operation of the exemplary test station of Lipscomb (210 in Fig. 4) employs a boresight reference source 498 and a reference fixture (Lipscomb Fig. 4, Ref. 500) to achieve laser boresight alignment. The reference fixture 500 is mounted on the test platform (390 in Figure 3 of Lipscomb) in place of the laser transceiver 360 under test. The reference fixture 500 includes a partially reflecting reference plate 540 and a reflecting corner cube 520 which provide two reflections of an impinging laser beam. The test operator then fires the boresight reference source 498 (HeNe laser) into the beam housing 380 such that the beam emitted by the reference source 498 exits the test beam entry port of the beam housing and reflects back from the reference fixture 500 to provide two reference beam spots on

the diagnostic image provided by the diagnostic camera 460. The test station operator can then adjust the position of the boresight reference source 498 so that the two reference beam spots are aligned on the diagnostic camera 460. The laser transceiver 360 is then mounted in place of the reference fixture 500. The test station operator then precisely adjusts the direction of the laser transceiver unit's beam by adjusting optical components included within the laser transceiver unit, such as, for example, a pair of Risley's, until the laser transceiver unit beam is positioned at the recorded reference beam spot position on the camera 460. Proper laser boresight alignment has then been achieved.

In contrast to Lipscomb, this invention is a method for aligning a laser transmitter system with respect to a receiver optical system. It does not use a boresight reference laser to generate two spots by means of a reference fixture. In contrast to the use of the reference fixture of Lipscomb (500 in Fig. 5 of Lipscomb), the attenuator-and-reflector assembly 10 of this present invention does not produce two images of a laser beam simultaneously on the means for capturing an image; rather it produces only one image of the input laser beam. Because it only produces one image of the input laser beam on the means for capturing an image, it cannot be operated according to the method of Lipscomb where alignment requires producing the overlap of two distinct beam spots on the camera by adjusting optical components. Consequently, **claims 1 and 15** of this invention are not anticipated by Lipscomb and are allowable.

Referring to **claims 2 and 16**, the Office asserts that Lipscomb shows repeating a process until the image of the second portion of the output laser beam impinges upon said desired region of pixels.

However, since **claims 2 and 16** incorporate all the limitations of independent **claims 1 and 15**, respectively, and since **claims 1 and 15** are not anticipated by Lipscomb and are therefore allowable, the dependent **claims 2 and 16** are allowable.

Referring to **claims 3 and 17**, the Office asserts that Lipscomb shows at least one optical element changing a pointing direction of said output laser beam.

However, since **claims 3 and 17** incorporate all the limitations of independent **claims 1 and 15**, respectively, and since **claims 1 and 15** are not anticipated by Lipscomb and are therefore allowable, the dependent **claims 3 and 17** are allowable.

Referring to **claim 4**, the Office asserts that Lipscomb shows a pointing direction that is repeatedly determined to track a change, and that it is inherent that the change occurs over the passage of time.

However, since **claim 4** incorporates all the limitations of independent **claim 1**, and since **claim 1** is not anticipated by Lipscomb and is therefore allowable, the dependent **claim 4** is allowable.

Referring to **claims 13 and 20**, the Office asserts that Lipscomb shows a reflection direction of a first portion of the output laser beam that is antiparallel to an original direction of the output laser beam (Fig. 4).

However, "antiparallel" beams are defined in paragraph 16 of this present invention as "those beams differing in their propagation direction by 180°." However, while Fig. 4 of Lipscomb shows several perpendicular beams within the beam box 380, it does not show an antiparallel beam. Consequently, **claims 13 and 20** of this invention are not anticipated by Lipscomb. Furthermore, since **claims 13 and 20** incorporate all the limitations of independent **claims 1 and 15**, respectively, and since **claims 1 and 15** are not anticipated by Lipscomb and are therefore allowable, the dependent **claims 13 and 20** are allowable.

II. DISCUSSION - 35 U.S.C. §103

Claims 5 and 6 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lipscomb in view of Edwards (US Pat. No. 4,889,425).

Referring to **claims 5 and 6**, the Office asserts that Lipscomb shows a pointing direction that is repeatedly determined to track a change. Edwards shows a pointing direction that is repeatedly determined to track a change as a result of temperature. The Office asserts that it would have been obvious to modify Lipscomb to include tracking of temperature due to the changing of optics over time due to change in ambient temperature.

However, since **claims 5 and 6** incorporate all the limitations of independent **claim 1**, and since **claim 1** is not anticipated by Lipscomb and is therefore allowable, the dependent **claims 5 and 6** are allowable.

Claims 11, 12, and 19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lipscomb in view of Duquette (US Pat. No. 5,872,626). The Office asserts that Lipscomb shows the measuring of an energy profile of the output laser beam but does not show using the intensity profile to measure the energy profile of the beam.

Regarding **claims 11**, the office asserts that Duquette shows using an intensity profile to measure a far-field energy profile. The office asserts that it would have been obvious to further modify Lipscomb to include the intensity profile that is employed to measure a far-field energy profile because this is a common means for measuring the energy profile of a laser beam.

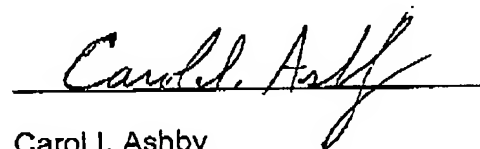
Regarding **claims 12 and 19**, Lipscomb shows the use of a camera as an image capturing device. Duquette shows the use of a CCD array to capture the image of a laser beam. The Office asserts that it would have been obvious to modify Lipscomb by using a CCD array because it is a common image capturing device.

However, since **claims 11 and 12** incorporate all the limitations of independent **claim 1**, and **claim 19** incorporates all the limitations of independent **claim 15**, and since **claims 1 and 15** are not anticipated by Lipscomb and is therefore allowable, the dependent **claims 11, 12, and 19** are allowable.

Conclusion

Applicants have responded to each and every objection and rejection, and urge that Claims 1-21 as presented are now in condition for allowance. Applicants request expeditious processing to allowance.

Respectfully submitted,



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